

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

To:

see form PCT/ISA/220

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/JP2005/012970

International filing date (day/month/year)
07.07.2005

Priority date (day/month/year)
15.07.2004

International Patent Classification (IPC) or both national classification and IPC
B60K6/04

Applicant
TOYOTA JIDOSHA KABUSHKI KAISHA

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:



European Patent Office - P.B. 5818 Patentlaan 2
NL-2280 HV Rijswijk - Pays Bas
Tel. +31 70 340 - 2040 Tx: 31 651 epo nl
Fax: +31 70 340 - 3016

Authorized Officer

Wagner, H

Telephone No. +31 70 340-4185



**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/JP2005/012970

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
 - ☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
 - ☐ a sequence listing
 - ☐ table(s) related to the sequence listing
 - b. format of material:
 - ☐ in written format
 - ☐ in computer readable form
 - c. time of filing/furnishing:
 - ☐ contained in the international application as filed.
 - ☐ filed together with the international application in computer readable form.
 - ☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/JP2005/012970

**Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or
Industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Yes: Claims	1-9
	No: Claims	
Inventive step (IS)	Yes: Claims	1-9
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-9
	No: Claims	

2. Citations and explanations

see separate sheet

Re Item V.

- 1 Reference is made to the following document:
D1 : US 2002/107617 A1 (TOMIKAWA SABURO) 8 August 2002 (2002-08-08)
- 2 Document D1, which is considered to represent the most relevant state of the art, discloses:
A hybrid vehicle, comprising:
an internal combustion engine;
an electric power-mechanical power input output mechanism that is connected to an output shaft of the internal combustion engine and to a drive shaft linked with one axle of said hybrid vehicle and inputs and outputs power from and to the output shaft and the drive shaft through input and output of electric power and mechanical power;
a motor that inputs and outputs power from and to either of the one axle and the other axle, which is different from the one axle;
an accumulator unit that transmits electric power to and from the electric power-mechanical power input output mechanism and the motor;
a drive power demand setting module that sets a drive power demand required for a drive of said hybrid vehicle;
a vehicle speed measurement module that measures vehicle speed of said hybrid vehicle.

From this, the subject-matter of independent claim 1 differs in that:
a lower rotation speed limit setting module sets a lower rotation speed limit, which represents a minimum allowable rotation speed of the internal combustion engine, corresponding to the measured vehicle speed;
and a control module that controls the internal combustion engine, the electric power-mechanical power input output mechanism, and the motor to drive the internal combustion engine at a rotation speed of not lower than the set lower rotation speed limit and to drive said hybrid vehicle with a power corresponding to the set drive power demand.

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING
AUTHORITY (SEPARATE SHEET)**

PCT/JP2005/012970

- 2.1 The subject-matter of claim 1 is therefore novel (Article 33(2) PCT)
- 2.2 The problem to be solved by the present invention may be regarded as:
the response of the drive units to the driver inputs is to be improved.
- 2.3 The solution to this problem proposed in claim 1 of the present application is
considered as involving an inventive step (Article 33(3) PCT) for the following
reasons:
limiting the minimum allowable rotation speed for the internal combustion engine,
dependent on the vehicle speed is not rendered obvious by the available prior art.
- 2.4 Claims 2-7 are dependent on claim 1 and as such also meet the requirements of the
PCT with respect to novelty and inventive step.
- 3 The same reasoning as above applies for independent claims 8 and 9. Therefore the
subject matter of claims 8 and 9 also meets the requirements of novelty and inventive
step (Article 33(2) and (3) PCT).

THIS PAGE BLANK (USPTO)